Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

December 22, 2106

Mr. Gary Mamigonian
Rochester Electronics, LLC
16 Malcolm Hoyt Drive
Newburyport, MA 01950

RE: NEWBURYPORT
Transmittal No.: X268240
Application No.: NE-16-005
Class: *SubMin*
FMF No.: 383549
AIR QUALITY PLAN APPROVAL

Dear Mr. Mamigonian:

The Massachusetts Department of Environmental Protection (MassDEP), Bureau of Air and Waste, has reviewed the Limited Plan Application (Application) listed above, which was submitted by Rochester Electronics, LLC (Rochester). This Application concerns Rochester's newly constructed continuing source semiconductor manufacturing operations in Newburyport, Massachusetts. Rochester has a principal place of business located at 16 Malcolm Hoyt Drive, Newburyport, Massachusetts and operates its business at the following Massachusetts addresses: 9, 10, 14, 16 and 18 Malcolm Hoyt Drive, Newburyport Massachusetts 01950. For Air Quality purposes (but not for Hazardous Waste purposes), these multiple addresses constitute a single facility.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control" regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-O, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

DESCRIPTION OF FACILITY AND APPLICATION

Rochester Electronics ("Permittee") is a semiconductor manufacturer dedicated to ongoing support of critically needed semiconductors for the entire lifecycle. With product licensing from leading semiconductor manufacturers, the Permittee continues to manufacture and distribute mature products when the original manufacturers no longer produce them. The corporate campus for Rochester Electronic is located in Newburyport, Massachusetts and is comprised of the headquarters, some manufacturing buildings, and a distribution facility.

The submitted plan application proposes a new manufacturing building located at 9 Malcolm Hoyt Drive which consists of three different electroplating operations known as Preclean, Plating, and Rack Strip. Each of these operations is composed of a series of baths with the emissions from these baths being controlled by one of two proposed packed bed scrubbers.

The first operation known as the Preclean line (Emission Unit No. 1) consists of a queue and load station, seven (7) baths, and an unload station. The seven baths can be further broken down into three process baths and four water rinse baths. All three process baths are acid treatment baths containing either sulfuric acid or a sulfuric-nitric acid mixture. The acid emissions from these process baths will be vented to a packed bed scrubber, which will be referred to as the NOx scrubber (PCD-1).

PCD-1 is a MAPCO MW-300-5-11-SC packed bed scrubber capable of handling a maximum process gas flow rate of 4,250 actual cubic feet per minute at ambient temperature. The scrubber will have a normal pH design set point range of 11 - 14 with a sodium hydroxide/water feed rate of 70 pounds per hour and BioNOx solver of 15 pounds per hour. The oxidation reduction potential will be maintained at 250 millivolts (mV). The expected overall minimum control efficiencies are 90 percent (%) by weight for acid gases and 99% by weight for total particulate matter.

The second operation involves the Plating line (Emission Unit No. 2) which consists of a loading station, thirty-three (33) baths, and an unloading station. Of the thirty-three baths, eleven are process baths and twenty-two are water rinse baths. The process baths will use a wide range of chemicals including acids, bases, and metals. These emissions will be vented to the Acid Scrubber (PCD-2).

PCD-2 is a MAPCO MW-100-24-5 R packed bed scrubber capable of handling a maximum process gas flow rate of 24,000 actual cubic feet per minute at ambient temperature. The scrubber will have a normal pH design set point range of 6 – 9 with a sodium hydroxide/water

feed rate of 30 pounds per hour. The expected overall minimum control efficiencies are 90 % by weight for acid gases and 99% by weight for total particulate matter.

The third operation is the Rack Strip line which consists of five baths, two process baths and three water rinse baths, and a loading/unloading station. The two process baths will utilize nitric acid solutions. These emissions will be vented to PCD-1 for control.

On May 5, 2016, MassDEP personnel conducted a site visit and observed that the proposed three process lines and the two packed bed scrubbers were installed, but were not operational. On June/July 2016, MassDEP personnel conducted a follow-up inspection to gather additional information on the proposed manufacturing building as well as the other existing buildings (other addresses) which make up the headquarters and campus. As a result of these findings, MassDEP and Rochester Electronics entered into an Administrative Consent Order with Penalty and Notice of Noncompliance, Enforcement Document Number 0000027, which became effective on December 22, 2016.

1. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1

EU#	Description	Design Capacity	Pollution Control Device (PCD)
EU 1	Preclean line	7 baths (3 process and 4 water)	MAPCO MW-300-5-11-SC packed bed scrubber (PCD-1)
EU 2	Plating line	33 baths (11 process and 22 water)	MAPCO MW-300-5-11-SC packed bed scrubber (PCD-2)
EU 3	Rack Strip line	5 baths (2 process and 3 water)	MAPCO MW-300-5-11-SC packed bed scrubber (PCD-1)

Table 1 Key:

EU# = Emission Unit Number
PCD = Pollution Control Device

2. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2:

Table 2

EU#	Operational / Production Limit	Air Contaminant	Emission Limit
EU 1 EU 3	Overall minimum control efficiencies of 90% for acid gases and 99% for total particulate matter Maintain pH between 11 – 14 and oxidation reduction potential (ORP) at 250 millivolts	PM	1.2 Lbs/mo. 0.006 TPY
		Acid Gas	50 Lbs/mo. 0.25 TPY
EU 2	Overall minimum control efficiencies of 90% for acid gases and 99% for total particulate matter Maintain pH between 6 - 9	VOC	200 Lbs/mo. 1.0 TPY
		Total HAP	24 Lbs/mo. 0.12 TPY
		PM	6 Lbs/mo. 0.03 TPY
		Acid Gas	62 Lbs/mo. 0.31 TPY
Facility-wide	N/A	VOC	530 Lbs/mo. 2.65 TPY
		Total HAP	280 Lbs/mo. 1.4 TPY
		PM	100 Lbs/mo. 0.5 TPY
		Acid Gas	240 Lbs/mo. 1.2 TPY

Table 2 Key:

EU# = Emission Unit Number
VOC = Volatile Organic Compounds

Total HAP = total Hazardous Air Pollutants
PM = Total Particulate Matter
Lbs/mo. = pounds per month
TPY = tons per consecutive12-month period

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5:

Table 3

EU#	Monitoring and Testing Requirements
EU 1 EU 3	1. The Permittee shall monitor the pressure drop across PCD-1 as well as the pH and oxidation reduction potential (ORP) at the beginning of each operating day.
EU 2	2. The Permittee shall monitor the pressure drop across PCD-2 and the pH at the beginning of each operating day.
EU 1 EU 2 EU 3	3. The Permittee shall monitor the consumption of raw materials and the actual emissions for the air pollutants listed in Table 2 above on a monthly and twelve month rolling basis.
Facility-wide	4. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	5. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and Regulation 310 CMR 7.13
	6. At least 30 days prior to emission testing, the Permittee shall submit to MassDEP for approval a stack emission pretest protocol.
	7. Within 45 days after emission testing, the Permittee shall submit to MassDEP a final stack emission test results report.

Table 3 Key:

EU# = Emission Unit Number
USEPA = United States Environmental Protection Agency
MassDEP = Massachusetts Department of Environmental Protection
CMR = Code of Massachusetts Regulations

Table 4	
EU#	**Record Keeping Requirements**
EU 1 EU 3	1. The Permittee shall record the readings of the pressure drop across PCD-1 as well as the pH and oxidation reduction potential (ORP) at the beginning of each operating day.
EU 2	2. The Permittee shall record the readings of the pressure drop across PCD-2 and the pH at the beginning of each operating day.
Facility-wide	3. The Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve-month period (current month plus prior eleven months). These records shall be compiled no later than the 15th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping.
	4. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	5. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EUs and PCDs approved herein on-site.
	6. The Permittee shall maintain a record of routine maintenance activities performed on the approved EUs, PCDs, and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	7. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EUs, PCDs, and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	8. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	9. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	10. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

EU# = Emission Unit Number
SOMP = Standard Operating and Maintenance Procedure
CMR = Code of Massachusetts Regulations
PCD = Pollution Control Device
USEPA = United States Environmental Protection Agency
MassDEP = Massachusetts Department of Environmental Protection

Table 5	
EU#	**Reporting Requirements**
Facility-wide	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall notify the Northeast Regional Office of MassDEP, BAW Permit Chief by telephone: 978-694-3200, email: NERO.Air@massmail.state.ma.us, or fax : 978-694-3499, as soon as possible, but no later than three (3) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to Permit Chief at MassDEP within ten (10) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30 days from MassDEP's request.
	4. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.
	5. The Permittee shall submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:

EU# = Emission Unit Number
BAW = Bureau of Air and Waste
CMR = Code of Massachusetts Regulations
MassDEP = Massachusetts Department of Environmental Protection

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

A. The Permittee is subject to and shall comply with the Special Terms and Conditions as contained in Table 6:

Table 6	
EU#	**Special Terms and Conditions**
EU 1 EU 2 EU 3	1. All of the applicable process baths shall be covered whenever the associated line is not in operation. The Permittee shall also reduce the temperature of the process baths (whenever possible) in order to minimize volatilization and emissions when they are not being used.
EU 1 EU 3	2. The pH of PCD-1 shall be maintained between 11 – 14 and the ORP shall be maintained at 250 millivolts (mV), whenever one or both these EUs are in operation.
EU 2	3. The pH of PCD-2 shall be maintained between 6 – 9, whenever this EU is in operation.
Facility-wide	4. This Final Approval does not negate the responsibility of owner/operator of the referenced facility to comply with this or any other applicable federal, state, or local regulations now or in the future. Nor does this approval imply compliance with any other applicable federal, state or local regulation now or in the future.
	5. Any prior Plan Approvals issued under 310 CMR 7.02 shall remain in effect unless specifically changed or superseded by this Plan Approval. The Facility shall not exceed the emission limits and shall comply with approved conditions specified in the prior Plan Approval(s) unless specifically altered by this Plan Approval.

Table 6 Key:

EU# = Emission Unit Number
PCD = Pollution Control Device
CMR = Code of Massachusetts Regulations

B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as “shanty caps” and “egg beaters.”

C. The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7, for the Emission Units that are regulated by this Plan Approval:

Table 7

EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
EU 1 EU 3	45	1.5	40	65 - 75
EU 2	55	3.33	46	65 - 75

Table 7 Key:
EU# = Emission Unit Number
°F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).

B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.

C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.

D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.

F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.

G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.

H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.

I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.

J. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Should you have any questions concerning this Plan Approval, please contact Mr. Mun Wong by telephone at 978-694-3286, or in writing at the letterhead address.

Sincerely,

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

_____

Susan Ruch
Deputy Regional Director & Acting Permit Chief

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

_____

Edward Braczyk
Supervising Environmental Engineer

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

_____

Mun S. Wong
Environmental Engineer
Bureau of Air & Waste

cc: Board of Health, City Hall, Newburyport, MA 01950
Fire Headquarters, Greenleaf Street, Newburyport, MA 01950
Epsilon Associates, Inc., 3 Clock Tower Place, Suite 250, Maynard, MA 01754
ATTN: Mr. Stephen Slocumb
MassDEP/Boston - Yi Tian (e-copy)
MassDEP/NERO – Martha Bolis, Mary Persky, Ed Braczyk (e-copy)